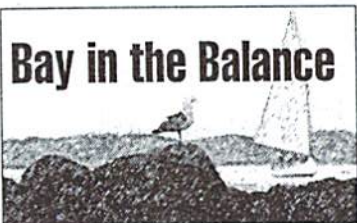


Part IV: The Shorebirds – Pitfalls of a Pit Stop



Bay in the Balance

By DEBORA BABIN KATZ

On a steamy July morning, a steady flow of four-wheel drives line up to find space along Duxbury Beach before the "maximum allowed" is reached and the harbor master officer turns the latecomers away.

At the same time, another population, this one avian, struggles to share the same stretch of beach. Their small, delicate bodies (capable of flying speeds of 40 miles per hour for great distances) are in sharp contrast to the Herculean-sized sports vehicles with which they must vie for space.

Every summer, approximately 30 species of shorebirds touch down along Duxbury Bay from the Canadian Arctic to refuel for their long journey to South America. The four thousand acres of intertidal habitat that comprise the Duxbury-Kingston-Plymouth Bays is a magnet for these birds, said Brian Harrington, a senior shorebird scientist at the Manomet Center for Conservation Sciences in Plymouth.

"One of the features of shorebirds is that they pick refueling spots that are quite productive; they're sort of exceptional spots, and individuals (shorebirds) will go back to the same spot, year after year," said Harrington.

There are five such locations in Massachusetts, which scientists refer to as "hot spots" or "staging areas" for shorebirds. The Duxbury-Kingston-Plymouth Bay area is one of these hot spots, which provides important nutrients in its tidal flats to refuel shorebirds before

they head south. Most of these birds will fly more than 7,000 miles round-trip and some will achieve more than 14,000 miles during their migration.

"A good fraction of the world population of shorebirds are coming in and using Plymouth, Duxbury, Kingston Bay and they will fly from here, non-stop over the ocean to South America," said Harrington.

The shorebirds' challenge is to fatten up before heading south. They feed at low tide day and night; at high tide they move to the beach to rest and clean their feathers (an important task for flight.)

"Duxbury Bay is globally important to the world; a whole breed of shorebirds could go extinct if we are not careful," said Joe Grady, Duxbury's conservation agent. "It's really a miracle what happens here."



Endangered Species Officer Mike Lane and his team put considerable effort into preparing Duxbury Beach for the arrival of plovers each April. This summer 47 plover eggs resulted in 13 fledged chicks.

Photo by David Grossman

Scientists believe shorebirds that do not accumulate fat, "the essential metabolic fuel," at the staging areas, will die on their migration south over the Atlantic Ocean. Recent studies show that an adult semipalmated sandpiper, which successfully increases its weight before leaving the bay area, is twice as likely to return to the area in future years. Other studies done between 1974 and 1983, report that shorebirds using Atlantic migration staging areas, such as Duxbury's barrier beach, have declined as much as 80 percent in population.

"Shorebirds migrate in July and August, during prime beach season," said Harrington, "and they are chronically disturbed in many areas." That said, Duxbury has done a better job than most in closing certain sections of the beach to vehicles so shorebirds can rest.

"In many areas that's not the case," he added, "and there is probably room for better management in Duxbury. But compared to most parts of the world, the town has done really well. There's been a huge improvement in the past 20 years — Plymouth by court order and Duxbury on its own volition."

Doing better, however, does not equate with doing well enough. Efforts to protect shorebirds in both Duxbury and Plymouth are hampered by the increasing presence of vehicles

on the beach.

Last summer, Harrington and his staff conducted a study to examine disturbance rates on Duxbury Beach. The project, — "Migratory shorebird and human interactions on coastal beaches in Southeastern Massachusetts" — was financed by

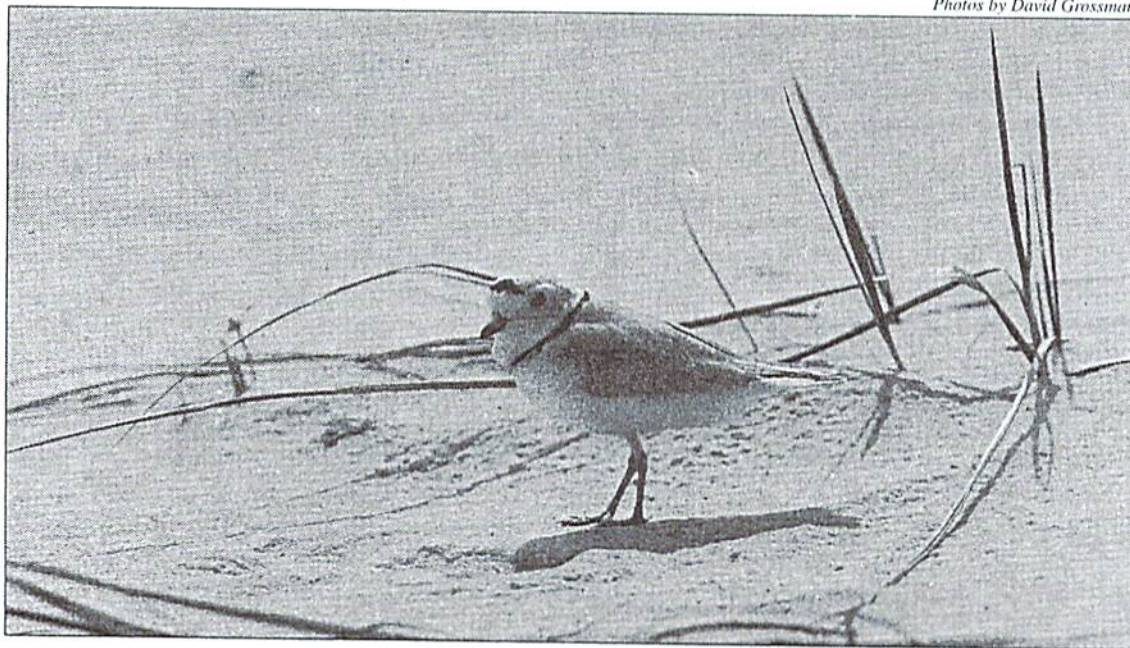


Duxbury Bay and environs is a magnet for 30 species of shorebirds, says Brian Harrington, senior shorebird scientist at the Manomet Center for Conservation Science in Plymouth.



JAM IN THE SAND — In what is becoming a summer ritual, SUVs stretch along the bay as motorists await permission to travel the beach. In stunning contrast, a lone piping plover stands watch on an isolated spot.

Photos by David Grossman



the Duxbury Beach Reservation with the goal of determining how shorebirds use barrier beaches and whether any conflicts exist between shorebirds' needs and human recreation.

The results, not surprisingly, revealed that shorebird flocks are disturbed more frequently on vehicle-accessible than on sections of the beach closed to four-wheelers.

The study also examined whether these increased disturbances impacted the shorebirds' ability to gain needed weight, mostly fat, for their flight to South America. "The study indicates that shorebirds can use substantial amounts of energy in responding to human activities on beaches during July and August," said Harrington. "Certain conditions would make this a serious problem."

According to past research, shorebirds using our beach gain less weight than at other localities. "Shorebirds using the Duxbury/Plymouth region are likely to be severely handicapped in their abilities to gain mass needed for continued migration, and the body of evidence suggests that subsequent mortality is a likely consequence," he said.

The question, then, is how can we ensure the shorebirds' success (getting to and from South America) while continuing to use Duxbury Beach during prime beach season? One recommendation suggests determining areas that are not popular hot spots for recreational use, but are appropriate as high tide resting areas for shorebirds. These areas would then be designated and managed as "high tide sanctuaries."

Vehicles on the beach are not the only troubling factor for shorebirds. Another recent study examined how boats disturb shorebirds, herons and other water birds. "Basically, the study looked at what dis-

SHOREBIRD SPECIES AROUND DUXBURY BAY

<u>Common Name</u>	<u>Scientific Name</u>
Black-bellied Plover	Pluvialis squatarola
Semipalmated Plover	C. semipalmatus
Ruddy Turnstone	Arenaria interpres
Red Knot	Calidris canutus
Sanderling	Calidris alba
Semipalmated Sanderling	C. pusilla
Least Sandpiper	C. minutilla
Dunlin	C. alpina
Short-billed Dowitcher	Limnodromus griseus

Duxbury Beach

tances the birds will get scared at," said Harrington who noted that for herons, a boat or water skier that approaches within 150 to 200 feet cause the birds to fly away.

Shellfishing, on the other hand, says Harrington, is a quiet activity which involves little movement "The birds accommodate to that very quickly," he said. Undetermined is how shell fishing -- the constant turning over of tidal flats -- impacts the shorebirds' food supply. Further study is required, Harrington believes.

"We have hugely growing recreational activities, and this is starting to take a pretty good toll on wildlife," he said.

While continued study is needed, shorebird scientists believe the evidence points to a strong likelihood that the shorebird population is declining. The proof is in the pudding, one might say. As Harrington and other scientists point out, the numbers show that shorebirds, including those using Duxbury Bay as a refueling station, are not making it to South America.

An SUV approaches a plover nesting area on Duxbury Beach. Some scientists argue that traffic should be banned during breeding seasons.



Photo by David Grossman

The Fight, Flight and Plight of the Plover

In Duxbury April marks the start of plover season when a small population of delicate, white-bellied shorebirds touch down on our beach. Their mission: to procreate four chicks per pair, refuel and set off again in August for warmer destinations.

Atlantic coast plovers are a federally threatened bird population. There are only about 1,300 pairs of this population from Newfoundland to North Carolina, said Scott Hecker, director of Mass. Audubon Society's coastal water bird program, as he walked the beach one May afternoon in search of plover nests called "scrapes."

The sand-colored adult piping plover, *Charadrius melodus*, is a tiny plump bird weighing 1.5 to two ounces; it is about seven inches in length. It is found only in North America and the total plover population numbers about 2500 pairs.

The demise of the plover dates to the late 1880s when wealthy Americans began developing coastal areas; that and bird hunting for the millinery trade nearly wiped out the entire species, prompting passage of the Migratory Bird Treaty Act of 1918. Soon after, the plo-

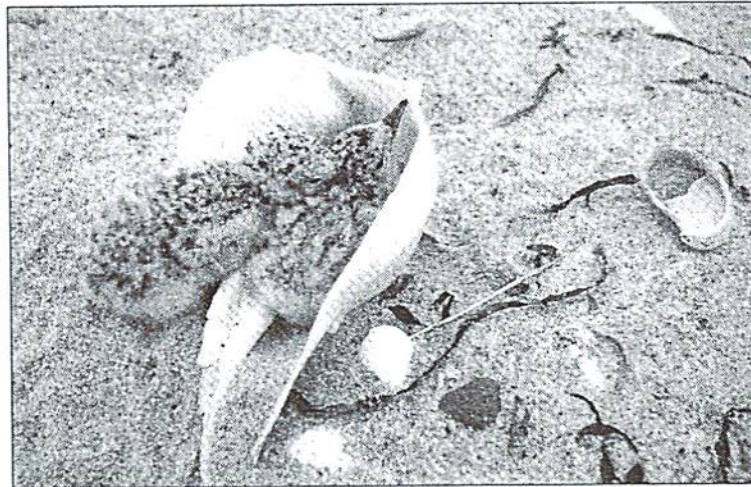
ver population began to recover with record numbers being recorded until 1940.

After World War II, however, increased coastal development caused their survival rates to plummet again, this time into the 1980s. Unlike some species, "piping plovers do not adapt to coastal development," said Hecker.

Protection came in 1986 when they were designated as a federally threatened species, and listed among 13 North American endangered birds under the state's Endangered Species Act.

Their habitat is also protected under the Massachusetts Wetland Protection Act, which is a strong regulatory tool used by the state to protect the plovers from degradation caused by dune activities and off road vehicles, explains Scott Melvin, senior zoologist for the Mass. Division of Fisheries and Wildlife.

Since 1987, programs, like the Mass. Audubon's Coastal Water Bird program, have helped increase the plover population in Massachusetts from 126 pairs in 1987 to as many as 505 pairs in the last year. Melvin attributes Massachusetts' success to the state's "tremendous plover habitat and



Two plover chicks hunker down in an abandoned seashell. Duxbury's plover rescue program produced 13 fledged chicks this summer.

Photo by Scott Hecker

many well managed beaches."

On Duxbury Beach, the plover's population increases are traced to the efforts of the Duxbury Beach Reservation, the Audubon Society, the Division of Fisheries and Wildlife, and to the town's beach managers. Endangered Species Officer Mike Lane, along with Don Beers and his team, prepare the beach each year well before the plovers' arrival.

To protect the plover, Lane and his monitors delineate habitat, control access and essentially baby-sit the chicks after they're hatched. (Piping plovers typically lay four eggs per nest, and they do not "sit" on

the nest until all four eggs are laid in the scrape.)

This year's preparations also included the whole controversy over dogs – the proposed ban, the leashing, the permits.

"Personally, I think the dog leashing and permits worked well this year," said Lane. "We never had real issues with things, and I only had to write out three tickets myself, mostly to non-residents who didn't know the rules."

Hecker said predator ex-closures have helped. "We increased hatchling success, but the piping plover babies immediately ran out into the beach and found all kinds of other problems." Among those problems are off-road vehicles.

"Duxbury Beach Reservation, or any town or anybody, who allowed vehicles on the beach had to pay attention," said Hecker. This prompted vehicle restrictions, such as roping off areas near the dunes to give the chicks more space.

Today, it's still a balancing act to maintain safe habitat for endangered species while allowing maximum access to off road vehicles. "There is a small segment of the population who have a strong interest in being able to drive on the beaches, plus off road permits provide income to some municipalities," adds Melvin. (This year

alone, Duxbury sold over 6,000 off road permits.)

The senior zoologist believes, however, that "we are moving toward a complete closure of these beach areas during the plover breeding season." Such closures would occur from May through July, and then a "significant portion" of the beaches would re-open.

But whether or not there are

2002 Plover Stats

Total Plover Pairs: 14

Total Plover Nests: 12

Total Eggs: 47

Nests Lost from Storm: 4

Nests Lost from Dogs: 0

Chicks Lost from Storm: 4

Nests Vandalized: 1

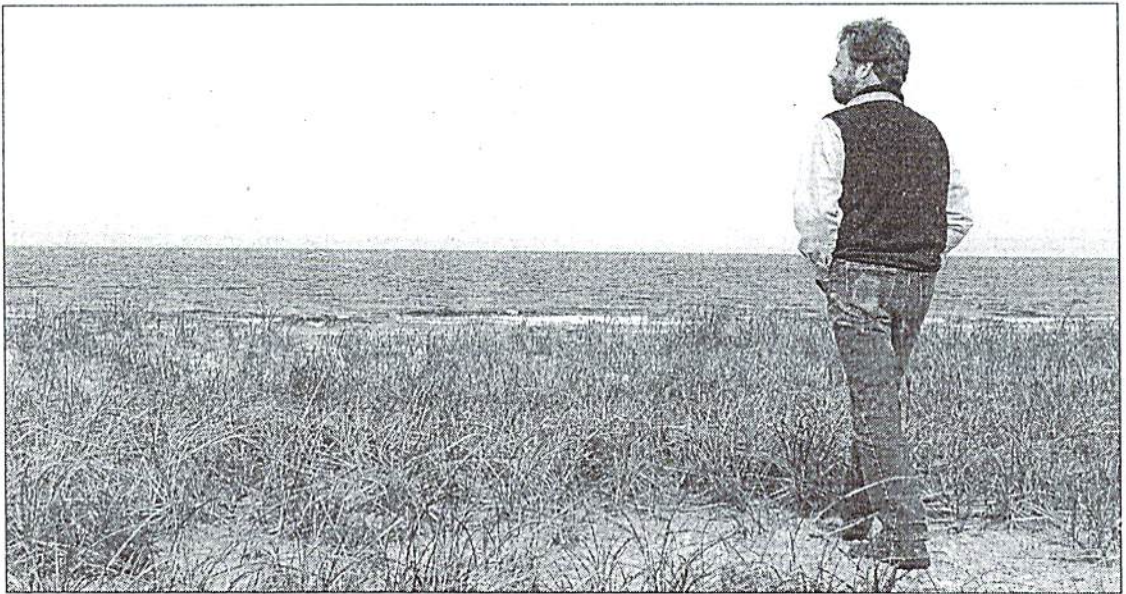
Fledged chicks: 13

Duxbury's State Ranking:

Just under 1 chick fledged

beach closings in the future, there is room for optimism over the future of the plover.

Next year could be a banner year for chicks on Duxbury Beach. The use of predator ex-closures, improved artificial nesting areas, and continued restrictions on vehicles, dogs, and human activity are evidence that the plovers' plight can be reversed. As Melvin points out, "beaches have good years and bad years. There's just no way to deal with Mother Nature."



From a grassed over sand dune Scott Hecker surveys the quietude of Duxbury Beach. He directs the Mass. Audubon Society's coastal water bird program.

Photo by David Grossman